

REMARKS

The Office Action of May 29, 2008 has been carefully considered.

A substitute specification has been required by the Examiner, and Applicants have attached a substitute specification hereto, in clean and marked-up forms. No new matter has been added.

In addition, Replacement Sheets have been submitted with Figures 1, 2a and 2b, defining these figures as "prior art" as is noted in the specification.

Objection has been raised to claims 1-9 as containing reference numerals, and claims 1-9 have been replaced by new claims 10-19, without reference numerals.

Claim 2 has been rejected under 35 USC 112, 2nd paragraph, on the basis of the expression "the most even expansion" and has also been rejected on lack of antecedent basis for "the diffuser channels."

The "diffuser channels" are now defined in claim 10, which also recites that the diffuser channels "expand evenly" based on the recited structure.

Withdrawal of this rejection is requested.

Claims 1, 5, 6 and 7 have been rejected under 35 USC 102(b) over McEwan or GB '699, and claims 3, 4, 7 and 8 have been rejected under 35 USC 103(a) over McEwan or GB '699.

The invention is directed to a vane diffuser for placement in a separator for separating a liquid phase and/or particulate material from a gas flowing through the vane diffuser in a flow direction. The vane diffuser comprises a top plate, a bottom plate, a plurality of curved, parallel vanes disposed between the top plate and the bottom plate and defining diffuser channels therebetween, and a distribution chamber delimited by the top plate, the bottom plate and the plurality of curved, parallel vanes. Claim 10 more clearly

recites the structure of the vanes, each of the vanes having a thickness which varies increases continuously in the flow direction to a maximum, then continuously decreases, resulting in a cross sectional area of the diffuser channels which expands evenly. This is the structure which can be seen in Figure 3a.

Both McEwan and GB '699 are alleged to disclose a vane diffuser for separators with a plurality of curved, parallel vanes "with varying thickness in the flow direction and evenly spaced (McEwan' 424 - figs. 1,2; col. 4, lines 42-51; GB '299 - fig. 4-5; p. 2, lines 70-110; p. 3, lines 42-56; 105-115)."

Applicants have studied the cited figures and disclosure of these references and can find no evidence that the references disclose vanes of varying thickness. For example, in McEwan, the vanes Fig. 2 are shown as no more than dashed lines of constant thickness; the cited disclosure does not even relate to the vanes, which are discussed at col. 4, lines 51-57. The thickness of the vanes is not mentioned.

Similarly, GB '699 shows in Figs. 4 and 5 no more than vanes as solid lines. The cited discussion of the vanes also does not suggest that the vanes have other than a constant thickness.

The present specification states in paragraphs [0013]-[0014] as published that when the vanes "are profiled with an appropriately varying thickness in the direction of the flow, a smoother expansion of the diffuser channels' cross-section is obtained compared to vanes having a uniform thickness. As a result a more efficient retardation of the gas velocity is obtained when the gas enters the separator, so that a more uniform vertical flow and thus a more efficient separation is obtained in the separator's settling zone, with an accordingly reduced risk of overloading the demister means at the top of the separator.

"More specifically, by applying profiled vanes one seeks to avoid the formation of a reverse flow (whirlpool) of gas on the suction side of the vanes due to a too abrupt expansion of the cross-section of the diffuser channels. Problems related to reverse flow, also denoted flow separation, are well known for divergent, straight channels. For straight, diffuser channels flow separation occurs when the expansion angle exceeds 14 degrees. For a curved diffuser channel the challenge to avoid flow separation is larger since the transverse oriented pressure gradients associated with the curvature of the channel add to the problems."

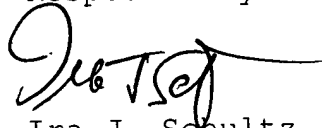
Hence, there is a clear rationale for providing vanes of varying thickness as is presently claimed, and no evidence that cited references teach vanes of varying thickness.

Withdrawal of these rejections is requested.

New claim 19 is directed a separator comprising the combination of the vane diffuser and a separation tank, as is clearly disclosed in the specification.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

Respectfully submitted,



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